the ratio of smoothness on the particle surface to said median diameter is not greater than 0.011, and the coating ratio of a colorant to scaly glittering particles to said median diameter is not greater than 80%, interspersing the scaly glittering particles within the range of not greater than 80% to the total written surface, and interspersing said colorant's particles among said glittering particles. --

A7

REMARKS

The Office Action.

In the Office Action dated October 11, 2001, the Examiner:

1. Rejected claims 1-28 under 35 U.S.C. § 112, second paragraph, as being indefinite;
2. Rejected claims 1-4, 6-10, 12-17, 19-20, 22-24 and 26-28 under 35 U.S.C. § 102 (b) as being anticipated by:
   a. EP600205 (claims 1, 6-10, and 12);
   b. JP10077438 (claims 1-4, 6-10, 12-17, 19-20, 22-24, and 26-28);
   c. JP07118592 (claims 1-2, 6-10, and 12)
3. Rejected claims 1 and 5-18 under 35 U.S.C. § 103 (a) as being unpatentable over
   a. EP600205, JP10077438 or JP07118592 any of which in view of either US 3,331,699 (Marshall et al.) or US 3,053,683 (Yolles (Claim 5),
   b. EP600205, JP10077438 or JP07118592 any of which in view of either US 5,510,397 (Okuda et al.) (Claims 11 and 18);
   c. EP600205, JP07118592 either of which in view of US6,099,629 (Morita et al.) (Claims 13-17);
   d. EP600205 (Claims 1, 6-10, and 12);

The Claimed Invention.

The claimed invention relates to an aqueous glittering ink comprising scaly glittering particles, a water-soluble resin, a water-soluble organic solvent, a colorant and water. The scaly glittering particles have a median diameter of at least 10μm. The ratio of smoothness on the particle surface to the median diameter is not greater than 0.011. And the surface coating ratio of said colorant covering the surface of said particle's surface in a written mark is not greater than 30% in a state of a dried written mark.

The Indefiniteness Rejection.

Applicants believe that each of the alleged sources of indefiniteness in the claims pointed out by the Examiner have been removed by the amendments to the claims.

In particular,

Claim 1.

The suggested amendment has been made.

Claim 2.

The terminology has been amended to – a thixotropic property --.

Claim 3.

The suggested amendments have been made.

Claim 4.

The suggested amendment has been made.

Claims 5 and 6.

The suggested amendment has been made.

Claim 9.

The suggested amendment has been made.

Claim 15.

The terminology has been clarified.

Claim 17.

The terminology has been clarified.

Claim 19 and 20.

The suggested amendment has been made.

Claims 21 and 25.

The terminology has been clarified.

Claims 22 and 26.

The suggested amendment has been made.

The Anticipation Rejections.

In order for prior art to anticipate under 35 U.S.C. § 102 it must meet every element of the claimed invention. Hybritech Inc. v. Monoclonal Antibodies, Inc., 802 F. 2d 1367, 231 U.S.P.Q. 81, 90 (Fed. Cir. 1986) More specifically, an anticipation rejection requires a showing that each limitation of a claim must be found in a single reference, practice or device. *In re* Donahue, 766 F. 2d 531, 226 U.S.P.Q. 619, 621 (Fed. Cir. 1985).

That is not true here. Key claim recitations are absent from the citations.

EP600205

EP600205 describes a mica coated with titanium oxide or iron oxide. That is, it discloses a so-called pearlescent pigment. Pearlescent pigment does not provide a glittering

feeling to a handwriting that glitters like star dust. It is not the glittering particle which the present invention recites.

In addition, the present invention specifies (1) the particle is glittering, (2) the ratio of smoothness on the smooth particle surface to the median diameter, and (3) the surface coating ratio of the colorant parameters that provide a glittering feeling that glitters in a handwriting. These three recitations are not disclosed in EP600205. The present invention, by specifying these recitations, including the numerical parameters, is capable of providing a glittering feeling, like stardust, to a handwriting.

The Examiner acknowledges that there is no explicit teaching (1) that the ink is glittering or (2) the ratio of smoothness to median diameter or (3) the surface coating ratio of the colorant covering the surface of the particle's surface, but attempts to remedy these deficiencies by asserting inherency.

This inherency approach is similar to arguing that a reference disclosing a graphite lubricant anticipates a claim to a diamond abrasive based on inherency because both graphite and diamond are carbon. Graphite and diamond may both be carbon – the same element, but have vastly different chemical and physical properties. The present claims recite properties that are not inherent, just as the smoothness of diamond is not inherent in graphite.

The Examiner asserts that EP600205 inherently has the numerical parameters of the present invention. However, since in a pearlescent pigment, metal oxide is coated on the surface of mica with a layered structure in cleavage, the surface of the pigment particle is not smooth. It is even clearer that EP600205 does not have the specific ratio of smoothness as stated in claim 1 of the present invention. Dullness in a pearlescent color is obtained by the transmission, refraction, and reflection of light inside the layered structure. Therefore, even if the particle

diameter might overlap with that of the glittering particles of the claim 1, a pearlescent pigment does not provide a glittering feeling to a handwriting. In other words, since the glittering particles of the claims of the present invention differ from the particles of a pearlescent pigment, it is not possible for EP600205 to inherently have the same ratio of smoothness and the same coating ratio.

In the ink of the present invention, a light reflects on a metal surface of particles and realizes the strong glittering feeling which glitters like star dust in a handwriting in which a colorant is contained. In the ink of EP 600205, since the particle surface is titanium oxide or iron oxide and the inner part of the particle is mica which has a high permeability of light, glittery metal reflection would not be obtained even though the color development of a pearlescent color may be obtained.

EP600205 fails to address smoothness. Therefore, hypothesizing an inherent ratio – set forth with an explicit numeric value - of smoothness to diameter out of the EP600205 disclosure is not supportable. The same holds for the surface coating ratio.

EP600205, by the Examiner's admission, fails to explicitly disclose three claim limitations. Inherency is inappropriate to fill those voids and the Examiner has offered no evidence to support inherency.

Claims 1, 6-10, and 12 are novel over EP600205.

In addition, new claim 30 includes the further limitation that the glittering particles have a smooth metal surface.

EP600205 discloses mica coated with titanium oxide or iron oxide, it does not state "scaly glittering particles that have a smooth metal surface" as set forth in claim 30 of the present invention. In this regard, EP600205 and claim 30 are different.

In the ink of the present invention, with the construction of claim 30, a light reflects on a metal surface of particles and realizes the strong glittering feeling which glitters like star dust in a handwriting in which a colorant is contained. In the ink of EP600205, since the particle surface is titanium oxide or iron oxide and the inner part of the particle is mica which has a high permeability to light, glittery metal reflection cannot be obtained even though the color development of a pearlescent color is obtained.

Therefore, claim 30 of the present invention is novel over EP600205.

JP10077438

JP10077438, like EP600205, discloses a mica coated with titanium oxide or iron oxide and it is different from the glittering particles of the present claims. Further, JP 10077438 does not disclose the ratio of smoothness to median diameter of the glittering particle surface, and the surface coating ratio of the colorant – numerical parameters to provide a glittering feeling that glitters in a handwriting.

The Examiner admits that there is no explicit disclosure (1) that the ink is glittering, (2) the ratio of smoothness to median diameter or (3) the smoothness of the written mark. The inherency asserted by the Examiner is unsupported. Consequently, there is a recognized failure of JP10077438 to anticipate.

The Examiner also states that JP10077438 discloses that the ink ingredients are mixed together which would intersperse the colorant among the coated mica pigment particles. However, since the pearlescent pigment of JP10077438 is different from the glittering particles of the present claims, this interspersing does not teach a handwriting with a glittering feeling like stardust. In addition, this interspersing does not disclose concrete "distribution of glittering particles" as stated in the claims of the present invention.

Further, the Examiner states that "It is disclosed that as shear rate increases, viscosity decreases so that the ink is clearly pseudoplastic. Further given that the ink is pseudoplastic and given that at 1 rpm, the viscosity ranges from approximately 1,000 - 9,000 mPas, it is clear that at 0.5 rpm, the viscosity will be greater than the viscosity at 1 rpm and thus meet the requirements of the present claims (Table 2)". However, this suggestion by JP10077438 merely stays within the general knowledge of the property of thixotropy. Moreover, JP10077438 relates to an ink structure that contains pearlescent pigments and not an ink structure that contains the glittering particles of the present claims. This statement of JP10077438 does not show employing specific physical values of the thixotropic property as stated in the present claims. The claims of the present invention enable the control of the dispersal stability of the particle in the ink even in the case of scaly glittering particles having the recited numerical parameters thereby providing an ink composition capable of preventing the sedimentation of the scaly glittering particles having the numerical parameters of the claims.

Therefore, claims 1-4, 6-10, 12-17, 19-20, 22-24, and 26-28 are novel over JP 10077438, as are claims 30 et seq.

JP07118592

Since JP 07118592, like EP600205 and JP 10077438, disclose a mica coated with titanium oxide or iron oxide, it is different from the glittering particles of the present claims for the reasons previously stated. Further, as was discussed for EP600205 and JP07118592 it does not disclose that the ink is glittering, the ratio of smoothness to median diameter of the glittering particle surface, and the surface coating ratio of the colorant adopted to provide a glittering feeling that glitters to a handwriting.

For the previously stated reasons, there is an admitted absence of anticipation.

Therefore, claims 1-2, 6-10, and 12 are novel over JP 07118592.

The Obviousness Rejections.

U.S. 3,331,699
U.S. 3,053,683

The glittering particles of claim 5 (or claim 30) are different not only from EP600205, JP10077438, and JP07118592, but even when taken in view of Marshall et al (US3331699) or Yolles (US3053683).

Marshall et al. (US3053683) discloses glass flakes coated with a translucent layer of particles of a metal oxide. (Col. 2, lines 55 and 56) As such, they are pearlescent pigments. And as such, Marshall suffers the same deficiencies as EP600205, JP10077438 and JP07118592.

Yolles (US3053683) discloses the use of glass flakes suitable for use in a coated film composition. However, Yolles does not at all disclose or suggest a glittering ink composition for a written mark in which scaly glittering particles and a colorant are contained, the scaly glittering particles having a smooth surface that reflects light, with the motive being to realize a strong glittering feeling that glitters like stardust (1) the ratio of smoothness to median diameter being not greater than 0.011, and (2) the surface coating ratio of a colorant covering the surface of the particle surface in a written mark being not greater than 80%. In other words, the numerical parameters of the present claims are not addressed by Yolles (or Marshall et al.).

Since the particles as set forth in EP600205, JP10077438, and JP07118592 are not glittering particles that reflect light even in view of Marshall et al. and Yolles, it is not possible to specify from a technical point of view the ratio of smoothness to median diameter and the

surface coating ratio. In other words, each element of claim 1 adopted to realize a strong glittering feeling that glitters like stardust in a hand writing which contains a colorant, is closely related to the recited numerical parameters. This technical relevance is not stated or suggested in or motivated by, the cited references.

U.S. 5,510,397
U.S. 6,099,629

The distinction lies not only in an opacifying pigment (US5510397) or a binder that is a resin emulsion (US6099629) but also in the scaly glittering particles themselves, particularly as specified by the recited numeric parameters, which are essentially different as discussed previously.

Further, as mentioned previously, the values of (1) the ratio of smoothness to median diameter, and (2) the surface coating ratio specify numeric values in relation to the glittering particles having the reflection surface that glitters, that are not set forth in the cited references, nor are they inherent.

Claims 11 and 13 through 18 are not obvious over EP600205, JP10077438, or JP 07118592 taken in view of US5510397 nor EP600205 or JP07118592 taken in view of US6099629

EP 600205

As mentioned above, the difference between EP600205 and the present claimed invention lies in the particles themselves.

As mentioned previously, the values of (1) the ratio of smoothness to median

diameter, and (2) the surface coating ratio specify numeric values in relation to the glittering particles having the reflection surface that glitters, are not set forth in the cited references, nor are they inherent.

As to the alleged obviousness of choosing pigment with a ratio of smoothness to median diameter, the cited art contains no teaching of a desired numeric value of smoothness nor a correlation of a numeric value of smoothness to a numeric value of median diameter. It is absent from the art. And cannot be supplied, except from the present Applicants' own teaching.

The same applies the surface coating ratio.

There has been no citation to the art itself to support the rejection in these respects.

Claims 1, 6-10 and 12 are not obvious in view of EP600205.

ADDITIONAL CLAIM FEE

Enclosed is Check No. 1871 in the amount of $ 342 for additional claims 29 through 33.

CONCLUSION

In view of the foregoing amendments and remarks, reconsideration and allowance of the application are respectfully requested.

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Respectfully submitted,

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VERSION WITH MARKINGS TO SHOW CHANGES MADE

1. (Amended.) An aqueous glittering ink comprising scaly glittering particles, a water-soluble resin, a water-soluble organic solvent, a colorant and water,

wherein [the] said scaly glittering particles have a median diameter of at least 10μm, [a] the ratio of smoothness on the particle surface to [a] the median diameter of not greater than 0.011, and a surface coating ratio of [the] said colorant covering the surface of [the] said particle's surface in a written mark of not greater than 80% in a state of a dried written mark.

2. (Amended.) An aqueous glittering ink as set forth in claim 1, wherein the ink has [the pseudo-plasticity fluidity (] a thixotropic property[)].

3. (Amended.) An aqueous glittering ink as set forth in claim 2, wherein the ink has [the T.I. value,] a thixotropy index, of not less than 1.3 represented by the ratio of V0.5 to V1.0 (V0.5 / V1.0), wherein V0.5 is the viscosity with the rotation speed of 0.5 rpm and V1.0 is the viscosity with the rotation speed of 1.0 rpm when the ink is measured by an ELD [-typed] viscometer [(] with an 3°R14 cone, at [the] a temperature of 20°C[)].

4. (Amended.) An aqueous glittering ink as set forth in claim 2, wherein the ink has [the] a viscosity of about 1000 [~] - 15000 mPa•s when measured by an ELD [-typed] viscometer [(] with an 3°R14 cone, rotation speed: 0.5 rpm at [the] a temperature of 20°C [)].

5. (Amended.) An aqueous glittering ink as set forth in claim 1, wherein [the] said scaly [glass] glittering particles comprise glass flake particles.

6. (Amended.) An aqueous glittering ink as set forth in claim 1, wherein [the] said scaly [glass] glittering particles comprise metal coated inorganic particles.

9. (Amended.) An aqueous glittering ink as set forth in claim 1, wherein [a] the water-soluble resin is contained in 0.01 – 40% by weight relative to the total amount of the ink.

10. (Amended.) An aqueous glittering ink as set forth in claim 1, wherein [a] the colorant is contained in 0.01 – 30% by weight relative to the total amount of the ink.

15. (Amended.) An aqueous glittering ink as set forth in claim 14, wherein the content of [the] said scaly glittering particles is 0.01 – 40% by weight, the water-soluble [thickening] resin is 0.01 – 40% by weight and the water-soluble organic solvent is 1-40% by weight, relative to the total amount of the ink.

17. (Amended.) An aqueous glittering ink as set forth in claim 15, further containing [a] the colorant in 0.01 – 30% by weight relative to the total amount of the ink.

19. (Amended.) A method for forming [the] a written mark comprising glittering particles, wherein glittering particles have a median diameter of at least 10 μm, the ratio of smoothness on the particle surface to [the] said median diameter is not greater than 0.011, and the coating ratio of a colorant to scaly glittering particles to [the] said median diameter is not greater than 80%, interspersing the scaly glittering particles within the range of not greater than 80% to the total written surface, and interspersing [the] said colorant's particles among [the] said glittering particles.

20. (Amended.) A method for forming [the] a written mark comprising glittering particles, wherein glittering particles have a median diameter of at least 25 μm, the ratio of smoothness on the particle surface to [the] said median diameter is not greater than 0.011, and the coating ratio of a colorant to scaly glittering particles to [the] said median diameter is not greater than 40%, interspersing the scaly glittering particles within the range of 20 [~] ≦ 45% to the total written surface, and interspersing [the] said colorant's particles among [the] said glittering particles.

21. (Amended.) A method for forming a written mark as set forth in claim 19, wherein [the rate of concavo-convex of resin coated film] a binder resin contained in an ink for fixing said scaly glittering particles to the written mark forms a coated film on said glittering particles, the degree of roughness of said coated film covering the surface of [the] said scaly glittering particles is not greater than 0.15 μm.

22. (Amended.) A method for forming a written mark as set forth in claim 19, wherein [a] the smoothness of [the coated film (] the written mark [)] is not less than 9 μm.

25. (Amended.) A written mark as set forth in claim 23, wherein [the rate of concavo-convex of resin coated film] a binder resin contained in an ink for fixing said scaly glittering particles to the written mark forms a coated film on said glittering particles, a degree of roughness of said coated film covering the surface of [the] said scaly glittering particles is not greater than 0.15 μm.

26. (Amended.) A written mark as set forth in claim 23, wherein the smoothness of [a coated film (] the written mark [)] is not less than 9 μm.

27. (Amended.) A ball-point pen with an aqueous glittering ink filled in the ink tank comprising scaly glittering particles, a water-soluble resin, a water-soluble organic solvent, a colorant and water, wherein [the] said scaly glittering particles have a median diameter of at least 25 μm, a thixotropy index [(T.I.value)] of not less than 1.3, represented by the ratio of V0.5 to V1.0 (V0.5 / V1.0), wherein V0.5 is the viscosity with the rotation speed of 0.5 rpm and V1.0 is the viscosity with the rotation speed of 1.0 rpm when the ink is measured by an ELD [-typed] viscometer [(] with a 3°R14 cone, at [the] a temperature of 20°C [)] and the V0.5, the viscosity with the rotation speed of 0.5 rpm, of 1000 [~] - 15000 mPa.